

AMENDMENTS TO THE CLAIMS:

Claims 1-22 (Cancelled)

23. (New) A solid shape describing method employed for an information processing system that stores shape data for describing a solid model existing in a three-dimensional space in a storage unit so as to use said shape data, said information processing system comprising a shape processing unit, a storage unit, a console unit, and a display unit, said shape describing method comprising the steps of:

displaying a fixed coordinate system corresponding to a pre-defined three-dimensional space on the screen of said display unit;

receiving first shape data for describing said solid model, and accepting an area of a single or plurality of floating coordinate systems and defined resolution for said solid model on said fixed coordinate system displayed on the screen of said display unit;

calculating a relative positional relationship between said fixed coordinate system and each of said floating coordinate systems from the area of said single floating or coordinate system or of each of said plurality of floating coordinate systems and said defined resolution algebraically to define a three-dimensional cell array that determines whether a grid point defined by said floating coordinate system exists inside or outside said shape;

describing the correspondence between said floating coordinate system and said three-dimensional cell array to generate second shape data for describing said solid model; and

storing said generated second shape data of said solid model in said storage unit.

24. (New) The solid shape describing method according to claim 23, wherein said method further includes a floating coordinate system order defining step of defining an order for said plurality of floating coordinate systems.

25. (New) The solid shape describing method according to claim 23, wherein said method further includes a material defining step of adding an attribute for denoting a material characteristic to a voxel corresponding to said three-dimensional cell array.

26. (New) The solid shape describing method according to claim 23, wherein said method further includes a detailing possibility defining step of adding an attribute to said voxel corresponding to said three-dimensional cell array, said attribute denoting whether or not another floating coordinate system describes a more detailed solid shape.

27. (New) An engineering system that employs a solid shape describing method for enabling shape data for describing a solid model existing in a three-dimensional space to be stored in a storage unit,

wherein said system comprises a solid shape processing unit, a data storage unit, a console unit, and a display unit,

wherein said solid shape processing unit includes:

a function for displaying a fixed coordinate system corresponding to said three-dimensional space on the display unit;

a floating coordinate system defining function for receiving first shape data for describing said solid model and accepting an area of a single or plurality of floating coordinate systems and

defined resolution for said solid model on said fixed coordinate system displayed on the screen of said display unit;

a fixed-floating coordinate system relative relationship describing function for algebraically calculating a relative positional relationship between said fixed coordinate system and said floating coordinate system from said area of said floating coordinate systems and said defined resolution to describe said relative positional relationship;

a three-dimensional cell array defining function for determining whether a grid point defined by said floating coordinate system exists inside or outside a shape; and

a floating coordinate system – three dimensional cell array correspondence describing function for receiving a command from said console unit to describe the correspondence between said floating coordinate system and said three-dimensional cell array of data according to each of said defined items so as to generate second shape data for describing said solid model and store said generated second shape in said storage unit.

28. The engineering system according to claim 27, further comprising a function for displaying both of said floating coordinate system and said solid model in layers on the screen of said displaying unit.